Proposal to NASA: Outer Heliosphere Swarm Miniature Telescopes (OHSMT) with Topological Quantum Entanglement Swarm (TQES) and HSRP-MLA3P Hulls – A CC-BY-SA Development Framework

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1. Vision and Opportunity I propose the Outer Heliosphere Swarm Miniature Telescopes (OHSMT), a constellation of micro-sized telescopes deployed to the outer Heliosphere to revolutionize deep-space astronomy and heliophysics of over 1% of light speed. Utilizing my Topological Quantum Entanglement Swarm (TQES) or other optimal software concepts and micro bots technology integrations for robust communication with my High Speed Regenerative Peltier with Multiple Laser&/voltage Amplifier Pulse Propellers Power-harvest (HSRP-MLA3P) hull design for advanced propulsions and applications. OHSMT offers a scalable, cost-effective platform to complement large observatories like the James Webb Space Telescope (JWST). As a swarm system, OHSMT provides flexibility to extend select units to the inner Oort Cloud (2,000–20,000 AU) in future probe mission phases, enabling further exploration of the solar system's boundaries. This proposal is submitted under a **CC-by-SA license**, encouraging NASA to develop OHSMT as an open, collaborative framework to foster global innovation in space technology and science.

###2. Concept Overview OHSMT envisions deploying 50–100 micro-telescopes to the Heliosphere, with the following features:

- **Miniaturized Telescope Robots, MTR**:

Compact telescopes optimized for ultraviolet, optical, and near-infrared observations, that integrate multipurpose robotic technologies

-**Topological Quantum Entanglement Swarm (TQES), or else**:

Leverages topological quantum states for decoherence-resistant, secure inter-satellite communication and precise swarm coordination, enabling synthetic aperture imaging or other optimal swarm technology.

-**HSRP-MLA3P**, High Speed Regenerative Peltier with Multiple Laser&/voltage Pulse Propellers, Power-Harvest hull: A hull technology that Integrates high-speed Regenerative Peltier with multiple laser or voltage amplifiers, fast energy storage/release systems and quantum energy harvesting modules to propel and sustain the swarm in deep space. The Hull itself could be using swarm software for smart precision controls.

- **Heliospheric Science**:

Monitors space weather and interstellar medium (ISM) interactions at the Heliosphere.

- **Oort Cloud Flexibility**: The swarm’s modular design allows NASA to send select telescopes to the inner Oort Cloud for direct probes later, potentially studying cometary bodies or pristine ISM conditions.

3. Scientific and Strategic Rationale Positioning OHSMTs at the Heliosphere offers unique advantages:

- **Pristine Observing Conditions**: Minimal solar interference and zodiacal dust enable clear views of distant cosmic objects.

- **Interstellar Medium Insights**: Direct measurements of the Heliosphere and ISM reveal galactic processes and cosmic ray origins.

- **Oort Cloud Potential**: Extending select units to the inner Oort Cloud could enable secondary objectives, such as studying cometary origins, with minimal obstruction risks due to the cloud’s sparse density.

- **Cost Efficiency**: CubeSat swarms reduce costs compared to traditional observatories, aligning with NASA’s SmallSat initiatives. The Oort Cloud’s sparse nature (objects separated by millions of kilometers) ensures negligible impact on telescope views, while HSRP-MLA3P’s precision propulsion allows the swarm to avoid rare obstacles.

4. TQES and HSRP-MLA3P Technologies - **TQES**:

- Utilizes topological quantum states (e.g., inspired by Majorana fermions or braiding) for robust, secure communication.

- Enables sub-millimeter positioning accuracy for synthetic aperture imaging, enhancing resolution.

- Resists decoherence in the heliosphere's extreme environment, ensuring reliable swarm coordination.

- **HSRP-MLA3P**:

- Combines laser or voltage amplifiers for high-energy propulsion pulses, fast storage/release systems (e.g., supercapacitors), and quantum energy harvesting modules.

- Optimized for **zero-point energy (ZPE)** harvesting, providing a sustainable power source for long missions.

- Enables precise navigation and station-keeping, critical for swarm operations at 100 AU and potential Oort Cloud extensions.

5. Why NASA and CC-BY-SA? NASA's expertise makes it the ideal leader for OHSMT:

- **SmallSat Leadership**: Proven success with CubeSats supports micro-telescope development.

- **Heliophysics Expertise**: Missions like Voyager demonstrate capability in the outer heliosphere.

- **Quantum Innovation**: Partnerships with NIST and quantum tech firms can advance TQES and ZPE harvesting.

- **Observatory Synergy**: Experience coordinating JWST and HST ensures seamless integration with large telescopes. The **CC-BY-SA framework** encourages open, decentralised collaborations, or, preferably complementations, allowing global researchers, institutions, and industry to contribute to and build upon OHSMT, accelerating innovations.

6. Development Needs To realize OHSMT, NASA should prioritize:

- **TQES R&D**: Develop space-hardened topological quantum communication systems, leveraging advances in quantum computing.

- **HSRP-MLA3P Propulsion**: Advance laser/voltage amplifiers, fast energy storage, and ZPE harvesting modules for efficient deep-space travel.

- **Micro-Telescopes**: Build compact, high-precision optics for 6U CubeSats, drawing on SPHEREx and DARPA's work.

- **Swarm AI**: Create algorithms for autonomous coordination and data synthesis, optimized for TQES.

7. Implementation Plan - **Phase 1: R&D (2025–2028)

-**: Fund feasibility studies for TQES, HSRP-MLA3P, and micro-telescopes ($10–20M).

- **Phase 2: Prototyping (2028–2032)**: Test TQES-enabled CubeSats in low Earth orbit, refining propulsion and optics.

- **Phase 3: Launch (2032–2035)**: Deploy via rideshare or dedicated deep-space mission to the Heliosphere.

- **Phase 4: Operations (2045–2055)**: Conduct observations, with potential extension of select units to the inner Oort Cloud.

- **Estimated Cost**: ~$300M, comparable to mid-scale missions like SPHEREx. Personally not after the money, they are for you and others to develop.

8. Expected Outcomes

- **Scientific Impact**: High-resolution, multi-perspective data on exoplanets, galaxies, and the ISM, enhancing JWST/HWO discoveries.

- **Technological Legacy**:

Prove TQES and HSRP-MLA3P for future swarm missions, including Oort Cloud exploration.

- **Open Innovation**:

CC-by-SA license fosters global collaboration, accelerating space technology development.

9. Conclusion

OHSMT, powered by TQES and HSRP-MLA3P, offers NASA a transformative, cost-effective platform to explore the outer heliosphere and beyond. Its flexibility to extend to the Oort Cloud and open CC-by-SA framework maximize scientific and collaborative potential. We urge NASA's Science Mission Directorate to adopt this vision, leveraging its resources to pioneer a new era of deep-space astronomy.

Proposer: Tan Eng Tiong @ Eng Tiong Tan, an independent researcher from Malaysia dedicated to advancing integration of theology, philosophy, cosmology and outer/deep space innovation through open collaborations.

--- **Notes**:

- **CC-by-SA Framework**:

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--A moderated AI text from my creative prompts.